3. Subbasin Assessment – Pollutant Source Inventory

There are three categories of potential pollution inputs to the waters of the Raft River Subbasin: background, non-point sources, and point sources. There are no known point sources that discharge to streams or rivers within the Raft River Subbasin.

Confined animal feeding operations (CAFOs) (for dairy and meat production), septic systems, and activities such as farming and grazing have the potential to produce pollutants in the watershed. Total surface discharges from these activities are minimal (with the exception of the growing season return flows from irrigated agriculture) and have relatively minor impacts on the reaches. It is unknown at this time how many sources within the subbasin land-apply their waste. Although the total discharges are minimal, the high concentrations of pollutants can make the loadings significant, particularly at lower flows. As noted, the region is arid, and most surface flow is intercepted and consumed in the agricultural process, evapotranspired, or infiltrated to the subsurface.

The contributions of the nonpoint source impacts; however, are often integrated from the many entry sites into the larger discrete flows of the tributaries and drains. This integration often hides the magnitude of the impacts of single activities or sources. For example, home sewer systems and animal feedlots are legally forbidden to produce direct surface discharge. However, manure from the latter activity is eventually spread on agricultural lands as fertilizer and becomes inseparable from other nutrient production that results from application of chemical fertilizer in the agricultural process. The great majority of lands used exclusively for grazing in this arid area produce no surface runoff at all, although rangelands (including mixed rangeland and forest lands) comprise approximately 60 percent of the land use of the subbasin. Where grazing (post-harvest) occurs in combination with agriculture, the effects of manure and trampling of riparian areas may be inseparable from, and concurrent with, the effects of fertilizer application and plowing up to the stream sides.

Natural erosive processes by the streams in the subbasin would include scouring stream banks and beds, overland sediment transport, and mass wasting (earth movement down-gradient). The natural introduction of nutrients and sediment into the watershed would include those from precipitation and wind transportation. Most of these processes are also, to some respect, enhanced or accelerated by human alterations of the landscape (e.g., grazing and farming operations that effect riparian growth and streamside cover), often making specific attribution of pollutant production difficult.

3.1 Sources of Pollutants of Concern

The following sections will discuss the point sources and major nonpoint sources within each watershed of the Raft River Subbasin. These sources or land uses will serve as the basis for the load allocations in the required TMDLs.

Point Sources

As stated previously, there are no known point sources within the subbasin that discharge to a water body. Confined animal feeding operations and other point sources which land apply exist within the subbasin. However, these sources are allowed zero discharge to a receiving water body through current rules and regulations. Consequently, any CAFO or land application site would receive a zero WLA in any TMDL developed as a result of this assessment.

Nonpoint Sources

Nonpoint pollution in the Raft River Subbasin has not been clearly identified. Rather it is assumed to be coming from the different land uses at equal rates. Given enough time, the differing rates would have been used to set load allocations. However, due to the water quality lawsuits, gross allocations based upon land use will be the preferred allocation scheme used by DEQ in the Raft River TMDLs. Therefore, any LAs can be made based on the percentage of differing land uses within a watershed or critical area. See Figure 9 for the location of watersheds within the Raft River subbasin. In some cases, the watershed area contains several water quality limited water bodies. In other cases, the water quality limited segment is not the mainstem of the watershed. In these instances, it was more appropriate to determine the land use breakdown from a set buffer of critical acres. In other TMDLs, this buffer zone was set at 1 mile on either side of the stream in question. This buffer zone would incorporate those acres most likely to influence the water quality of the stream. Table 38 describes the land use breakdown of each watershed or buffer zone that contains a water quality limited water body within the Raft River Subbasin.

Table 38. Land uses of each watershed containing §303(d) listed water bodies.

Watershed/ water body	Percent Dry-Land Agriculture	Percent Forest	Percent Range	Percent Urban	Percent Irrigated Sprinkler	Percent Irrigated Gravity
Raft River, Utah to Malta	43.0	4.1	42.0	0.3	9.2	1.3
Raft River, Malta to Snake River		20.0	60.9	1.2	14.1	3.8
Sublett Creek, Reservoir to Lower Bounds	40.3	0.2	44.6		3.7	11.2
Cassia Creek, Conner Creek to Raft River		11.3	86.1		1.6	1.0
Fall Creek, Headwaters to Lake Fork Creek			100.0			
Lake Fork Creek, Headwaters to Reservoir			100.0			
Sublett Reservoir			100.0			
Sublett Creek, Headwaters to Reservoir			100.0			

3.2 Data Gaps

This section contains a description of the data gaps concerning pollution sources and transport. Due to the brevity of the assessment period, sources and the mechanisms concerning transport are weakly understood. Previous TMDLs have simply used land use as the tool to allocate loads. This approach relies heavily on post-TMDL monitoring and adaptive management to refine the LAs once better information, such as pollutant transport mechanisms, is developed.

- Little is known concerning the relative yield of pollutants from identified sources (by source type and/or subwatershed). An equal percentage has been applied in past TMDLs.
- Little is known about seasonal pollutant delivery from identified sources.
- The relationships between pollutants specific to identified sources (i.e., physical or chemical associations) need to be better defined.
- Stream reaches most sensitive to impairment need to be identified.